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ORIGINAL ARTICLES

WHY WE SHOULD DEMAND POISON LABELS ON CONCENTRATED LYE AND WASHING POWDER PACKAGES.

R. C. Lynch, M. D.
New Orleans,
President American Bronchoscopic Society.

About two and a half years ago there came to my attention one of the most pitiful conditions that a doctor is called upon to relieve. The victim was a little boy, a member of a family of five children, whose father is a man of very moderate salary and whose mother, assisted by a small negro girl, cares for the home.

In the process of cleaning, concentrated lye was used, the can being half empty was left on the kitchen floor. The boy prowling around, found the can and because of the contents, nice white color and its consistency of candy, he proceeded to eat the deadly stuff. The ingestion was followed by a call for help, and another lye patient began its career.

To the nearest druggist a call for help was sent and the child was promptly given an emetic which caused the fluid to burn on its way up just as it had going down.

After the immediate results were over and the sore mouth healed the scared mother regained her composure only to be confronted with a second anxiety.

The child became pale, was losing weight and was very fretful for no apparent reason. For nearly two days nothing could be swallowed, not even water; then he had a vomiting spell and was well for another period of time, only to be followed by a repetition of these attacks, and finally the prolongation of these attacks made it necessary to consult a surgeon who recognized the condition and performed a gastrostomy as a means of rebuilding the starving and water-hungry tissues. This done and the funnel feeding begun, the boy regained a part of his weight, but not near what he should have. Then an attempt was made to pass a stomach tube, then a soft bougie and finally a stiff bougie, all of which failed to get into the stomach. We then tried a thick bismuth mixture and fluoroscopic examination which disclosed an apparent complete stricture of the esophagus beginning at the line of the crossing of the right main bronchus. A very thin barium mixture with the fluoroscope showed a very faint trickle from this point into the stomach.

Several trials to dialate this stricture finally ended in the decision to wait six months and try again. Time organized the stricture into a firm and unyielding one, and the constant desire on the part of the patient to swallow solids and fluids so dilated the esophagus above the stricture that the pouch thus formed was the size of a large apple. In this shape the boy came to me for relief. Haggard and worn for the lack of food properly prepared, harassed by the multiple annoyances of a gastrostomy tube and a ceaseless craving to eat and drink by the normal way.

Esophagoscopy under general anesthetic showed a large pouch of the esophagus with the membrane fiery red and swollen due to the constant maceration of retained food and secretion, and after a long, patient and careful search we succeeded in the passing of a very fine filiform into the stomach.

Daily esophagoscopy and gradual dilation of the stricture began. I wonder how many medical men, and I am sure only two laymen, the mother and the boy, know what this means. The delays, vicissitudes, trials and interruptions are too numerous to mention.

At one time this child was examined by a pediatrician, and after a careful study of the chest with X-ray, etc., came to the conclusion there was either T. B. or multiple abcess formation.

Careful treatment of the pouch, continuous preaching and education to the mother, persistence and perseverance on the part of the patient, developed that kind of co-operation which means success, and finally after two and one-half years,

this little boy is rewarded by having his tube removed and can now eat soft gruels; though it will be quite some time yet before he can eat solid foods.

Can you see any reason why we should not have the enactment of a law requiring that all cans and packages containing lye should be labeled and also a rigid enforcement of the law? I am sure that you will agree with me that this should be done and I am also sure that every mother in this United States will agree with me if she could see this little boy which is only one of the many.

If I had the time to recount the number of lye cases with esophageal strictures it would fill a volume too big to print and much too big to read.

A man too busy to stop for lunch ran up to a lunch stand for a cup of coffee. This he drank hurriedly and with the coffee a portion of lye that had been carelessly left in the cup in some way. After days of dilatation, much suffering and loss of time from business our efforts finally brought the man to normal. A damage suit promptly put the proprietor of the offending lunch counter out of business. This might suggest to you two more reasons for the enactment and enforcement of such a law.

Have you ever seen an old man with a gastrostomy tube following a lye burn? Can one re-establish swallowing by the natural route in a case of complete stricture of the esophagus when its extent is an inch or more? I have never seen or read of one up to this time. I, like others, have tried this, but always with fatal results.

Concentrated lye and the more diluted washing powders, if not immediately fatal, produce a result that for the extreme of the torture and slowness of death would satisfy the most barbarous of the medieval ages. I wonder why use of this method was not resorted to in those ages.

What a glorious feeling and joy it is to know that the future citizens of your state are protected by the enactment of such legislation as the Lye Bill. It should be an inspiration to every man, woman, father and mother, to see that such a law is enforced even in the most remote districts.

I do hope that Louisiana will join you, and until every state in the Union has joined hands in this one great cause I will feel that our people have neglected the one great stride that will bring about a protection for our future welfare.

LYE LEGISLATION IN FLORIDA.

H. MARSHALL TAYLOR, M. D.
Jacksonville, Fla.

For the information of the physicians of our state who were not present at the last session of the Florida Medical Association it is well to state that the following motion was made and unanimously carried:

"That the Legislature of the State of Florida be memorialized to pass a law regulating the sale of caustic acid, caustic alkalies, and preparations thereof, and mineral or chemical salts intended for household use, including preparations ordinarily described as or called 'lye', and providing penalties for the violation thereof."

A committee was appointed to bring this matter to the attention of the Legislature which was then in session.

It is not my intention at this time to make a report of that committee, but in view of the fact that we are now on the verge of an epoch in child welfare work in Florida, I deem it wise that the results of the efforts of this committee be mentioned at this time.

On May 21st, House Bill No. 218, which accompanies this article, was introduced by the Honorable Amos Lewis, and was promptly passed by both branches of the Legislature, signed by Governor Hardee, and became a law which goes into effect January 1, 1924.

It is a pleasure at this time to express our appreciation and deep indebtedness to our Governor and to both houses of our Legislature for their willingness to make of this emergency legislation.

The fact that this bill went through the House of Representatives and the Senate in two days is an evidence of the maganimity of our legislators toward humanitarian objects.

The two letters which also accompany this article, are further evidence of the co-operation which we may expect from Governor Hardee and Attorney-General Buford.

The humane side of the lye matter is the particular phase which has interested medical men throughout our nation. However, the economics of this question is also of tremendous importance. The annual cost to the state for the hospitalization of children poisoned with lye has to be reckoned with as well as the care of such a large number who are invalided for life and who are incapacitated for self-support. Dr. L. W. Dean has dwelt at length on this point.

At the San Francisco session of the American Medical Association on June 21, 1923, the unregulated sale of lye was regarded as a national menace and was looked upon as sufficiently grave to warrant nation-wide action. On the recommendation of the Reference Committee on Hygiene and Public Health, the following resolution offered by Dr. Burt R. Shurly, delegate from the section on Laryngology, Otology and Rhinology, was adopted, by the House of Delegates:

"WHEREAS, The domestic use of concentrated lye and other caustic alkalis and of corrosive acids, in ignorance of their dangerous properties and treatment in case of accident, is a not infrequent cause of death and of prolonged, distressing and incurable disability, particularly among children; and

"WHEREAS, In the judgment of this house the adoption of suitable methods of packing, labeling and distributing such substances would materially diminish the danger; and

"WHEREAS, Effects to bring about the adoption of such methods by the voluntary action of manufacturers and distributors have given no prospect of success, be it

"Resolved, That it is the sense of the House of Delegates of the American Medical Association, in convention assembled, that in the interest of public health and safety, the packing, labeling and other distribution of concentrated lye and of other caustic alkalis and of corrosive acids should be regulated by law; and be it

"Resolved, further, That the Board of Trustees be instructed to take such action as may be necessary to procure the enactment of such federal and state laws as may be necessary to effect such regulation."

In lending our efforts to the passage of this measure the Florida Medical Association has also complied with the request of the Committee on Lye Legislation of the American Medical Association which recommended that an active campaign be instituted in every state in the Union to obtain state legislation to protect the children from lye by conspicuous labeling with the word "Poison" in capital letters of not less than twenty-four point size. The following is the text of the Lye Bill passed by the Florida Legislature:

AN ACT to Regulate the Sale of Caustic Acid, Caustic Alkalies, and Preparations Thereof, and Mineral or Chemical Salts Intended for Household Use, Including Preparations Ordinarily Described as or Called "Lye," and Providing Penalties for the Violation Thereof.

Be it Enacted by the Legislature of the State of Florida:

SECTION 1. That on and after the first day of January, one thousand nine hundred and twenty-four, it shall be unlawful for any person or copartnership or corporation to sell at wholesale or retail within this State any caustic acids or caustic alkalies or preparations "containing such acids or alkalies" intended for household use, including preparations ordinarily described as or called *"Lye,"* without affixing to the bottle, box, vessel, sack or package containing the same a label printed or plainly written containing the name of the article, the name and place of business of the manufacturer, seller or distributor of such household acids, alkalies or preparations thereof, and in addition the word "Poison," which shall conspicuously appear thereon in red capital letters not less than twenty-four-point size or which shall be affixed thereto as a sticker conspicuously placed.

SECTION 2. The word "Caustic" shall within the intent and purpose of this act be construed to mean any "acids or alkalies in liquid or powdered form of" preparations thereof, or containing free or chemically, unneutralized hydrochloric acid in a concentration of ten (10) per centum, or sulphuric acid in a concentration of ten (10) per centum, or nitric acid in a concentration of five (5) per centum, or carbolic acid (Phenol) in a concentration of five (5) per centum, or oxalic acid in a concentration of ten (10) per centum, or acetic acid in a concentration of twenty (20) per centum or hypochlorous acid (calax Chlorinata bleaching powder or chloride of lime) in a concentration of one hundred per centum (100), or potassium hydrate (caustic potash Vienna paste pearlash potassa carbonas) in a concentration of ten (10) per centum, or sodium hydrate caustic soda (concentrated lye) in a concentration of twenty (20) per centum, or silver nitrate (lunar caustic) in a concentration of five (5) per centum.

SECTION 3. Any person or copartnership or corporation violating section one of this act is guilty of a misdemeanor, and upon conviction shall be sentenced to pay a fine of not more than one hundred dollars and the costs of prosecution, or imprisonment of not more than 90 days.

SECTION 4. This Act shall take effect upon its passage and approval by the Governor.

Approved by the Governor and filed in office of Secretary of State June 7, 1923.

This measure works no hardship on the lye manufacturer nor any pecuniary sacrifice on the part of either the wholesale or retail grocers. The Committee on Lye Legislation of the American Medical Association calls attention to the fact that there is no reason why the labeling of corrosive poisons sold by lye packers should be left to the option of the seller when the druggist is compelled by law to attach a poison label to corrosive poison he sells. Such an argument they state would imply that the druggist is less trustworthy than the lye packer. This committee is of the opinion that in all matters of public health, legal enactment should come first, for with that backing, commercial co-operation and public education are developed rapidly.

Dr. Wm. B. Chamberlin, in his address as chairman of the Section on Laryngology, Otology and Rhinology, of the American Medical Association, states as another reason why the distributors of lye should respect this law relative to the labeling of lye, that in addition to the fine imposed any individual injured or poisoned from the contents of improperly labeled containers of lye may now sue the distributor for personal damage.

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"Regard for the Public Welfare is the Highest Law"

AMERICAN WHOLESALE GROCERS' ASSOCIATION

407-412 CONSOLIDATED BUILDING
JACKSONVILLE, FLORIDA

October 23, 1923.

TO THE WHOLESALE GROCERS OF FLORIDA.

Gentlemen:

An Act to Regulate the Sale of "Lye".

I deem it of the greatest importance that your attention should be drawn at this time to the above Bill, passed at the last session of the Florida Legislature, which law becomes operative on January 1, 1924.

You will note this law requires, in short, that every package of lye sold in the State of Florida shall carry thereon a POISON label, in 24 point type - in RED capital letters.

A copy of the Bill is enclosed.

You will, I have no doubt, desire at this time to bring this Bill to the attention of the manufacturers from whom you are purchasing lye, potash, etc., in order that the labels on the product you will sell after January 1, 1924 shall conform with the provisions of the law.

I can conceive of no more important legislation than that embodied in this Act and am confident that all of our people as well as the manufacturers of lye themselves will prove most responsive to this effort of the authorities to safeguard the life and physical welfare of men, women and little children. As both an economic and humanitarian movement, it is to be hoped that every state in the Union and the Federal Government as well, will fall in line with the states that have already enacted this POISON WARNING law.

Respectfully submitted,

AMERICAN WHOLESALE GROCERS ASSOCIATION,

J. H. McLaurin,

President.

It is to be hoped that the commercial interests in our state will co-operate in this measure which has but one aim, the avoidance of inexpressible suffering to the unfortunate and innocent children who have the misfortune to be invalided for life or to die in the tortures of acute lye poisoning.

I am pleased to report that we have the earnest and valuable co-operation of Mr. J. H. McLaurin of Jacksonville, president of the American Wholesale Grocers' Association. The letter embodied in this article, which Mr. McLaurin has given me his permission to publish, will have a tremendous influence throughout the nation as well is in our state.

CARY A. HARDEE
GOVERNOR

L. B. EDWARDS
SECRETARY

STATE OF FLORIDA
EXECUTIVE DEPARTMENT
TALLAHASSEE

October 9th, 1923.

Dr. H. Marshall Taylor,
Jacksonville, Florida.

Dear Dr. Taylor:

My attention has been called to an Act passed by the last Legislature requiring that preparations containing caustic alkalies should be labeled as to the name of the article, name and place of business of the manufacturer, seller or distributor of such household acids, alkalies or preparations thereof and in addition, the word "Poison" conspicuously placed on the label in red letters. This Act becomes effective on and after the first day of January, 1924.

The necessity for this legislation is quite apparent. There are numerous cases of children who unknowingly take caustic acids resulting in death or at most physical impairment for life. We would be recreant to the higher duties imposed upon us if we did not use every effort possible in preventing cases of this kind. The Act above referred to was passed by the Legislature in the hope that by proper labeling of caustic alkalies and all preparations containing the same should be very carefully guarded, thus preventing innocent children from becoming victims of its hurtful effects.

Under the law failure to comply with the provisions requiring proper label is punishable as a misdemeanor and I shall expect, of course, a literal compliance with the law when it becomes effective.

Thanking you for your interest in the subject and with personal regards, I am

Very truly yours,

Cary A. Hardee

CAH/AB

Governor.

In a recent communication from Dr. W. C. Woodward, executive secretary of the Bureau of Legal Medicine and Legislation, of the American Medical Association, the following statement was made: "The enforcement of the laws that have been enacted in Florida and Pennsylvania will contribute materially toward safeguarding the people not only of those states, but of all others, because packers and jobbers will probably find it to their advantage to prepare their products in accordance with the most rigid requirements of those states even though it may not be intended for use in either of them, so that it may be salable not only there but in all other jurisdictions. The enactment of the laws by Florida and Pennsylvania will prove of service to the people of the country generally."

STATE OF FLORIDA
OFFICE OF THE
ATTORNEY GENERAL
TALLAHASSEE

RIVERS BUFORD
ATTORNEY GENERAL

October 10, 1923

Dr. H. Marshall Taylor,
Jacksonville, Fla.

Dear Sir:

I am very much gratified to observe that the physicians throughout the State, as well as the different medical organizations, are evincing interest in the enforcement of the statute requiring all packages containing potash or lye to be labeled "Poison".

I have been shocked by the knowledge that so many young lives are being destroyed by children innocently or ignorantly taking into their systems this health destroying and death dealing agency. I had no idea that the destruction of health and life from this cause could be anything like what it is.

It is, of course, the duty of the law officers throughout the State to enforce the law and to bring to the bar of justice those who violate it, but it is also the duty of every citizen and, especially of the physicians to call attention to dealers as well as to users, of the great danger which lurks in every package of this stuff and to report to the law officers every infraction of the statute.

I shall be pleased to cooperate with the medical organizations and other interested persons in procuring the absolute enforcement of the label statute.

Yours very truly,

Rivers Buford

Attorney-General.

q/8

With the enactment of this bill it is to be hoped that all will realize that the campaign has just begun. Every physician in our state as well as our Board of Health should aid in educating the public in the dangers of caustic alkalies and the great necessity of making them inaccessible to small children.

I am confident that every physician in Florida joins me in acknowledging with gratitude the wise counsel Dr. Chevalier Jackson has given us in this effort toward child welfare in our State. Only through his ceaseless and untiring effort has lye legislation been made practical and possible. Dr. Chamberlin has well said that Dr. Jackson's attitude in this cause has been another evidence of the altruistic spirit which distinguishes and glorifies medicine.

ESOPHAGEAL STENOSIS FROM CAUSTIC LYE—AS SEEN BY THE ROENTGENOLOGIST.

W. McL. Shaw, M. D.,

Jacksonville, Florida.

The cases presented here have been selected in an attempt to illustrate several types of cicatricial stenosis of the esophagus caused by lye burn. The Wassermann reaction in each case was negative. They are all cases more or less of long standing as practically all coming for roentgen study are of the chronic type where strictures have already manifested themselves.

The task from the roentgenologist's point of view is establishing the fact that actual pathology exists in the esophagus, and how extensive it is. But accurately localizing the lesion as an aid to the surgeon is not always an easy one. It must be remembered that these cases are usually in a highly nervous condition, weak from loss of weight and lack of food. They have sometimes gotten to the point where they are afraid to swallow from past painful experiences in choking. The majority, though, are usually ravenous for food and water and eager to try anything in the faint hope that a little may leak through to the stomach. These are those with complete stenosis, as a rule.

The diagnostic work has necessarily to be done with great rapidity less they regurgitate the opaque solution from the esophagus, or even vomit it, as is sometimes done, with great force. These cases are always studied both by direct observation with the fluoroscopic screen and by films made in several different positions, such as antero-posterior, lateral, oblique, and postero-anterior. We have always used two solutions of opaque media, one just a little thicker than ordinary fresh buttermilk, and the other a very

Fig. 1. Case I. Several weeks following gastrostomy.

thick mixture. We find the barium buttermilk mixture adaptable to this work.

CASE 1.—Miss L. L.

Clinical History: This patient unfortunately drank some lye two years before admission. She was admitted on The Bronchoscopic Service at St. Luke's Hospital, Jacksonville, Fla., August 18, 1923. Age 16, height 5 feet, one inch; weight, 58 pounds. Two years ago patient drank a solution of lye from an unlabled can. Difficulty in swallowing, with progressive emaciation followed. Six months ago patient was able to swallow liquids only with difficulty. Six days prior to admission to St. Luke's a complete aphagia developed. She was carried to the hospital in a state of collapse as a result of inanition and acute water-hunger. A gastrostomy was performed by Dr. E. H. Teeter and there has been a gradual return of strength. The problem of bouginage now presents itself. (See figure 1.)

Roentgen Examination: The roentgen examination covered the esophagus and included fluoroscopic study as well as film study.

Under screen observation, the mouth was filled with a thin mixture of barium and buttermilk, and, when told to swallow, it was seen to pass freely along the course of the esophagus until a point opposite the second dorsal vertebra was reached where it was seen to pocket in a dilated pouch. No barium passed this point for several minutes, when, after giving a very thin mixture (almost the consistency of fresh buttermilk) a little was seen to trickle through and outline the course of the esophagus with a rather ragged outline as far down as the level of the eighth dorsal vertebra when it stopped again. After several minutes' observation and continued attempts at swallowing, the patient began to cough violently. Screen study now showed a direct communication, filled with the opaque barium, between the esophagus and the right main bronchus at the level of the sixth dorsal vertebra. (See figure 2.) Barium was seen in the right main bronchus and also outlining the smaller bronchi and infiltrating the right lung.

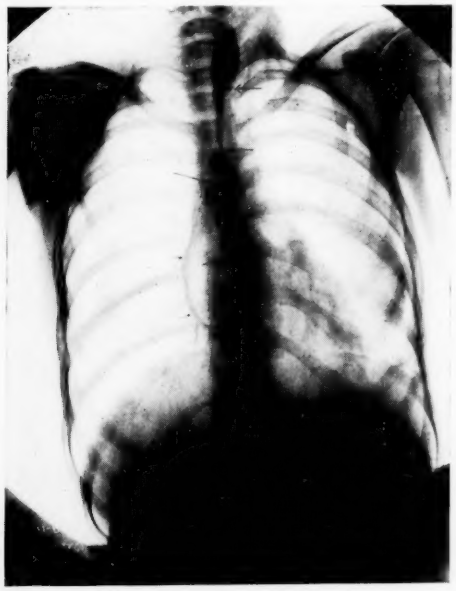

FIG. 2. CASE I. Miss L. L., age 16 years. Ant. Post. View. Complete stenosis of the esophagus at the ninth dorsal vertebra. Bronchoesophageal fistula at the sixth dorsal vertebra. Barium in right main bronchus and several smaller bronchi.

Several films were made of the chest in different positions as rapidly as possible. Study of these gives similar evidence as that noted with the screen. The fistulous opening between the esophagus and right main bronchus is clearly seen as well as the narrowed and ragged esophagus above this point. The barium lying in the smaller bronchi and infiltrating the lung could also be seen in the films. She continued to cough for several minutes and succeeded in bringing up the greater part of the contents of the esophagus and also clearing the respiratory tract to a large extent.

Study of this case extended over a period of thirty minutes, during which no barium had passed through the esophagus to the stomach. Owing to the patient's weakened condition, the examination was terminated at this point. We felt that we were dealing here with a case of complete stenosis of the esophagus and also the very unusual condition of broncho-esophageal fistula from caustic potash erosion.

This case presents a most unusual condition, namely, that of a broncho-esophageal fistula from lye burns in the esophagus. Fistulae communicating between the esophagus and respiratory tract are not rare, but as far as we have been able to learn from a survey of the literature, they have in all cases been either syphilitic, tuberculous, or carcinomatous in origin.

Dr. Chevalier Jackson, relative to this case, says: "A perforation into a bronchus, though common in cancer and lues, and occasionally seen in tuberculosis, is very rare after lye burns," and was kind enough to write as follows as to his idea of treatment of the case: "I would suggest that

the patient be induced to swallow an opaque string so that you could see it go into the bronchus if a fistula is previous at the time the string is swallowed. If the string passes on into the stomach you would then have an opportunity to use the Tucker retrograde bougies, which would be perfectly safe, when used with skill, and would expedite the treatment very much. If it is not possible to get the string through by swallowing, then I would suggest a retrograde esophagoscopy and pass a bougie up from below. When it reaches the mouth a string could be used and drawn down into the stomach which would give the endless string required for the use of the Tucker bougie."

CASE 2.—N. K.

Family History is negative except for the fact that father and mother could neither read nor write.

Clinical History: A girl, 6 years of age. Four years before entrance to St. Luke's Hospital she swallowed an unknown quantity of lye. Severe burning of the mouth followed, and for a day or two she was unable to swallow anything. A varying amount of dysphagia ensued, extending over a period of four years. Two days before entrance to the hospital a complete aphagia developed. On admission, patient's skin was dry, face drawn, showing an anxious expression and was in a state of serious water-hunger. Esophagoscopy showed a complete closure of the esophagus opposite the fifth dorsal vertebra. A gastrostomy was done, the patient did not react well and died eighteen hours after operation.

Roentgen Examination: The child was studied carefully under the fluoroscope to try to discover any pieces of bone or other opaque substances in the course of the esophagus. Nothing of this nature was found. Stereoscopic films were also made of the chest with negative findings for anything in the esophagus that might cause the obstruction.

A full mouthful of the thin barium meal mixture was taken, and, under screen observation, she was told to swallow. The opaque solution was seen to descend the course of the esophagus normally to a point opposite the fifth dorsal vertebra where it suddenly stopped. On rotating the patient, this lower level of the filled esophagus was on a level with the third rib anteriorly. There was no great dilation of the esophagus above this point. Two cross marks were made on the skin anterior and posterior opposite the point of obstruction with skin ink for guidance of the surgeon. After a very few minutes (possibly three) about three-fourths of the opaque solution was rather forcibly vomited. No coughing. She was given more of

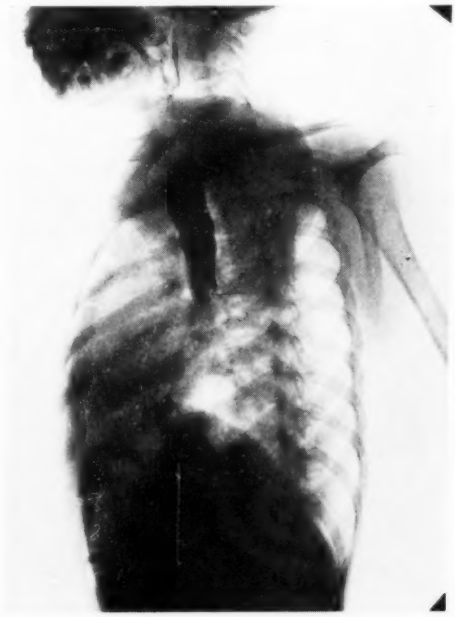

FIG. 3. CASE II. N. K., age 6 years. Complete esophageal stenosis with ragged and sacculated appearance of lower end.

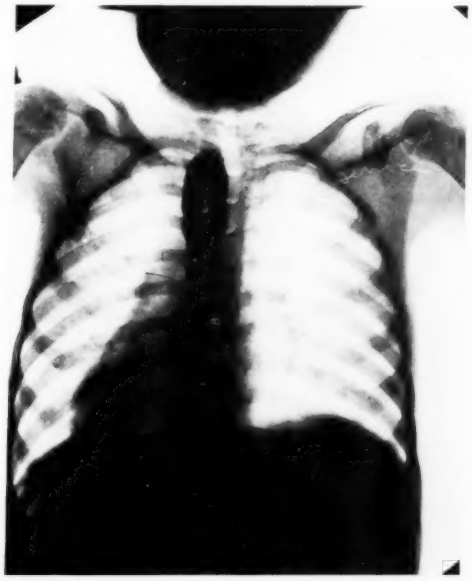

FIG. 4. CASE II. N. K., age 6 years. Complete stenosis of esophagus with serrated lower border and slight dilatation above stricture.

the barium mixture and several films made immediately in different positions before she again vomited. Figures 3 and 4 show lateral and antero-posterior views of the chest. These films gave corroborative evidence to the screen study and also showed the lower border of the filled portion of the esophagus to taper sharply to a point about the size of a lead pencil. This was the appearance in the antero-posterior view, while the oblique and lateral positions showed the lower border sacculated into three pockets. Any amount of vomiting did not dislodge all of the barium or change the appearance of this lower end. It was felt that we were dealing with a complete stenosis of the esophagus as none of the very thin mixture had seeped through to the stomach after forty-five minutes' observation. A diagnosis of complete esophageal stenosis was made and the upper border of the stricture localized.

CASE 3.—L. V. A colored man, aged 24, was admitted to the Duval County Hospital because of inability to swallow either solid food or liquids. He stated that the night before he had been eating a meal of spare-ribs and felt that a piece of meat had "lodged in his throat," and since that time he could swallow nothing. Further questioning brought out the fact that he had been subject to just such "choking spells" before, and the following history was obtained: When 3 years of age he drank some of the contents of a can of lye which was in the back yard where his mother was washing clothes. Seven years later he developed an aphagia and for seven days was unable to swallow either solid food or liquids. Again, when he was 17 years old, he developed a dysphagia and for several days he could swallow only liquids. This time esophagoscopic bouginage was carried out. On entrance to Duval County Hospital patient was suffering from an acute water-hunger. Esophagoscopy revealed a marked narrowing of the lumen of the esophagus. Esophagoscopic bouginage was undertaken with favorable results.

Roentgen Examination: Fluoroscopic study was made of the chest and abdomen as usual, preliminary to making films, emphasis being put on the mouth, throat and course of the esophagus. Nothing suggestive of bone or any other foreign body was noted. Several films made over the throat, chest and abdomen gave no evidence of foreign body.

An ordinary barium meal was then given, and, under screen observation, the opaque solution was seen to descend normally the esophagus until a point about the level of the seventh dorsal vertebra was reached, at which point it abruptly stopped. The lower border of the column of barium in the esophagus was ragged and had the appearance of covering over or overlapping some particles of food. He was unable to pass any of the barium on into the stomach, and, after a very few minutes, regurgitated practically the entire contents of the esophagus along with a quantity of mucus. More of the meal was given and several films made. (See figures 5 and 6.) There was no dilation above the point of obstruction, but there appeared to be an overlapping on itself of the upper end of the esophagus several inches above the pathological point. At no time was

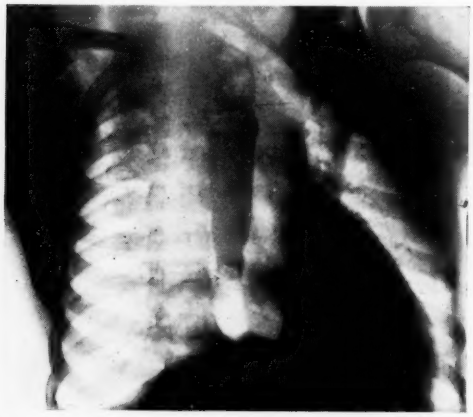

FIG. 5. CASE III. L. V., age 24 years. Complete esophageal stenosis. Oblique view. Folding of upper end of esophagus upon itself; also point of stenosis with ragged border.

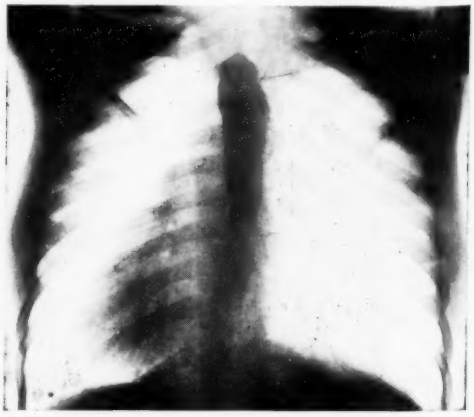

FIG. 6. CASE III. L. V., age 24 years. Complete esophageal stenosis. Esophagus not dilated above stenosis.

there noted any barium passing on into the stomach. Study was continued for a period of about forty-five minutes, throughout which the stomach remained empty. This appeared to be a complete stenosis. In this case, it was difficult to state just where the upper end of the stenosed esophagus began because of the probability of there being more or less food lodged in the esophagus above the actual stricture, this making it impossible for the opaque solution to reach the last point of normal lumen. A diagnosis of esophageal stenosis following potash burns was made.

This case is reported because it is a good example of a more or less large number of these unfortunates. Here was a grown, healthy-looking man, pursuing his trade of a butcher in apparent perfect health only to be suddenly thrown on the sick list and placed in a more or less helpless condition at irregular intervals throughout his life. These come on from no carelessness of his own, but, nevertheless, he ceases to be a breadwinner and instead is a liability on the hands of the community.

Case 4.—D. W. Age 6 years.

Clinical History: When two years old, he swallowed lye. Details of accident unobtainable. Admitted to St. Luke's Hospital shortly afterwards where gastrostomy was performed. He improved and adjusted himself to taking food through the tube. For a period of four years, he has been coming back at irregular intervals for bouginage. He improved to where he could swallow liquids and soft foods. His gastrostomy tube was removed, and, when discharged, strict instructions to return at the first indication of trouble were given.

Satisfactory reports have been received from his parents since his discharge over a year ago. The report of the roentgen findings represents only the last examination made prior to discharge. This case represents what can be done for these patients if gotten early and closely observed over long periods with repeated bouginage when indicated.

Roentgen Examination: Screen study showed a large feeding tube in the cardiac end of the stomach. The usual thin mixture of barium was given and observed to travel down the esophagus readily and on into the stomach. At first, there was no evidence of obstruction other than a moderate dilation of the upper half. Films were made in several positions in the act of swallowing with the esophagus full. (See figures 7 and 8.) Study of these shows a stricture of the esophagus reaching from about the seventh to the ninth dorsal

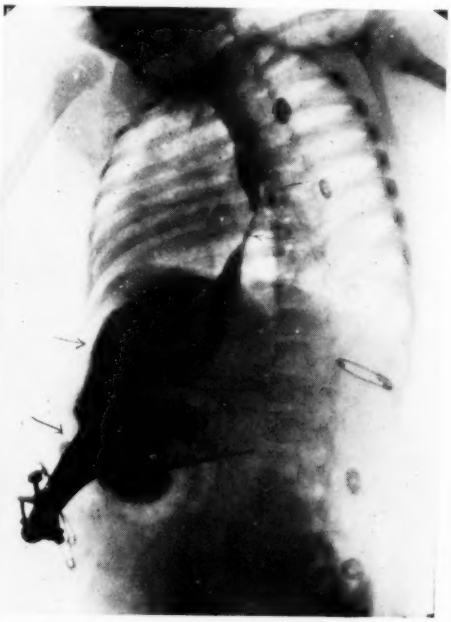

Fig. 7. Case IV. D. W., age 6 years. Partial stenosis of esophagus after dilatation at the level of seventh to ninth dorsal vertebræ. Stomach filled through the esophagus.

Fig 8. Case IV. D. W., age 6 years. Partial stenosis of esophagus from seventh to ninth dorsal vertebræ. Stomach filled with barium. Stomach tube in place.

vertebra. As a large amount of barium had already passed into the stomach, we considered the scar a marginal one rather than an annular one.

REMARKS.

This is a review of a preventable condition and yet it is only a few of the thousands who are either fatally burned or else injured for life by the ingestion of lye. The majority of these cases are in this pitiable state for the reason that the laity generally have not been sufficiently warned as to the poisonous nature of household lye. With our state legislation and a nation-wide educational propaganda that lye should be kept out of the reach of children, this distressing condition could be made to become an extremely rare occurrance.

These cases were studied on the services of St. Luke's Hospital and the Duval County Hospital of Jacksonville. I wish to acknowledge and to express my appreciation to Dr. L. W. Cunningham and the other members of the staffs of these institutions for their co-operation and assistance, and to Dr. H. Marshall Taylor for the esophagoscopic findings.

THE TREATMENT OF DIABETES WITH THE AID OF INSULIN*

JAMES E. PAULLIN, M. D.,
and
HAROLD M. BOWCOCK, M. D.,
Atlanta, Ga.

The marvelous story of the discovery and perfection of insulin, because of its vast importance, has become a subject of almost universal knowledge. Hence, it will suffice to give a very brief summary of the events leading up to its discovery, practical application and commercial production.

The important work of Von Mering and Minkowski[1], Allen[2], and others, long since proved that extirpation of the pancreas in healthy dogs gave rise to a condition which, in every essential respect, resembled diabetes mellitus. This fact gave weight to the belief that diabetes was occasioned by the absence of some substance which was produced by the normal pancreas. Numerous attempts were made by various workers to obtain this substance experimentally, but none of these efforts were rewarded by complete success. It remained for Banting and Best[3], working in the laboratory of Dr. J. J. R. MacLeod in the Physiological Laboratory of the University of Toronto, to obtain this substance experimentally, and to make the practical application of their discovery.

The early isolation of the active extract of the pancreas was performed by Banting and Best[4], as follows: A ligature was placed about the pancreatic duct of a dog, giving rise after a period of several weeks to atrophy of the acinous portion of the pancreas, but leaving the tissue of the islands of Langerhans undamaged. Upon removal of this atrophic pancreas and its extraction with Ringer's solution, an extract was obtained, which, when injected into previously depancreatized diabetic dogs caused a definite lowering of the blood sugar and a decrease or cessation of glycosuria. The method of obtaining an active extract was submitted to many changes and improvements, and finally, with the assistance of J. B. Collip and E. C. Noble, a purified extract, practically free from injurious protein derivatives and suitable for human administration, was obtained. A complete description of the methods employed may be found in the original publications of the above workers.

The treatment of the first case of human diabetes was carried out by Banting, Best, Campbell and Fletcher[5] in the clinic of Dr. Duncan Graham at The Toronto General Hospital and was attended with the same remarkable results as observed in the experimental observations upon dogs.

Following a protracted period of carefully controlled experimentation, insulin was produced commercially and supplied to various diabetic clinics in this country and Canada for further experimental observation. Insulin is now being furnished commercially by the Connaught Antitoxin Laboratories of the University of Toronto, and by Eli Lilly and Company of Indianapolis, Indiana, under the supervision and control of the Insulin Committee of the University of Toronto. The authors take great pleasure in expressing their indebtedness to the Insulin Committee and to Drs. H. H. A. Clowes and A. L. Waters of the Eli Lilly and Company for many favors and for furnishing the supply of Insulin (Lilly) which was used in carrying out the experimental work, the report of which follows:

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*Presented before the Fiftieth Annual Meeting of the Florida Medical Association, held at Jacksonville May 15, 16, 1923.

Insulin (Lilly) is now supplied to the profession in ampoules of two concentrations; that designated as H_{10} contains 10 units per cubic centimeter; H_{20} contains 20 units per cubic centimeter. One unit represents one-third of the dose necessary to lower the blood sugar of two kilogram fasting rabbit below 0.045 per cent in from two to five hours.

The mechanism by which insulin produces its effect is as yet undetermined. With its clinical use it is possible to maintain the blood sugar at a normal level and keep the urine sugar-free. It has been experimentally proved that this is accomplished in some manner by increasing the ability of the diabetic organism to oxidize glucose, and thus insulin may assist in the utilization of the glucose derived from protein and fat as well as from carbohydrate. Concomitant with the proper utilization of glucose, the normal oxidation of the fatty acids available from protein and fat takes place, and in this way the development of acidosis is prevented and the urine kept free from acetone and diacetic acid. The amount of glucose oxidized by one unit of insulin varies with the severity of the diabetes, ranging from about one gram in severe cases to three or four grams in mild cases. Probably as a result of this normal metabolism, there is an accompanying feeling of marked improvement and well-being on the part of the diabetic individual.

Dosage: Before determining upon the dose of insulin to be administered in a specific case, it is advisable to first arrange a suitable diet which will serve as a basis of testing the patient's ability to utilize glucose. It has usually been our custom to calculate and give an adequate diet at the very beginning in uncomplicated cases without acidosis, supplying a diet for adults, which will yield about thirty-five calories per kilogram of body weight, with proper attention to the glucose, fatty-acid ratio of the diet. As an example we may choose a patient weighing 132 pounds (naked). $132 \div 2.2 = 60$ kilograms. 35 calories $\times$ $60 = 2100$ calories, the amount of energy which we wish to supply from the diet in 24 hours. Since one gram of protein per kilogram of body weight is sufficient to maintain nitrogen equilibrium, 60 grams of protein will be used in the diet. It is now necessary to determine the amount of carbohydrate and fat necessary in the diet, in such a ratio as not to give rise to acidosis. This safe ratio is approximately one gram of available glucose to one and one-half grams of available fatty acid, calculated as follows:

Carbohydrate = 100 per cent available glucose.
Protein = 58 per cent available glucose; = 46 per cent available fatty acid.
Fat = 10 per cent available glucose; = 90 per cent available fatty acid.

Having determined upon 60 grams of protein, we test the calculation of the empirical formula: carbohydrate, 70 grams; protein, 60 grams; fat, 180 grams.

		Available glucose.	*Available fatty acid.*
Carbohydrate	70 gms. =	70	0
Protein	60 gms. =	34.8	27.6
Fat	180 gms. =	18	162.0
Totals		122.8	189.6

$189.6 \div 122.8 = 1.54$, or a safe ratio of available glucose to available fatty acid. The caloric value is satisfied also:

1.0 gm. carbohydrate yields 4 calories;	
70 gms.	280 calories
1.0 gm. protein yields 4 calories; 60 gms.	240 calories
1.0 gm. fat yields 9 calories; 180 gms.	1620 calories
Total	2140 calories

The patient then receives this diet for two days, during which time we may assume that the urine volume averages 3,000 c.c. for each twenty-four hours and contains an average of 1.4 per cent of sugar, or 42.0 grams of sugar each twenty-four hours. Since the diet furnishes 122.8 grams of available glucose, and the urine shows a waste of 42.0 grams of glucose, this individual's glucose tolerance is 80.8 grams, and we must furnish sufficient insulin to oxidize the 42.0 grams of glucose which would otherwise be excreted. In order to remain within safe limits we administer, to begin with, approximately one unit of insulin for each four grams of glucose excreted. In a case such as the example, the patient would receive five units of insulin thirty minutes before breakfast and five units thirty minutes before supper. The urine probably would not become sugar-free upon this dosage and a further increase of one unit each dose would be made until the 24-hour specimen of urine was sugar-free. In more severe cases a third dose of insulin might be necessary before the mid-day meal, while in milder cases one dose each day would suffice. When three doses of equal strength are employed the available glucose of the diet may be equally distributed between the three meals; when one or two doses are given each day, the available

glucose of the meal before which the insulin is injected should be greater than in those meals prior to which no dose is given. It is often very helpful to collect and test separately all specimens of urine voided in order to determine at what time sugar appears in the urine so that an increase of the insulin dosage which is administered before the time of the appearance of sugar can be made. A more detailed account of the method of determining upon a satisfactory and safe diet can be found in the articles by Woodyatt, Strouse, Holmes, Wilder, and others[6].

Administration: Insulin is best administered subcutaneously; it may be given intravenously, but there is no particular advantage to be gained by this method. Occasionally, during the earlier days of commercial production, there occurred a local reaction at the site of injection due to the protein contained in the extract; this rarely resulted in the formation of a sterile abscess. Urticaria was also sometimes seen in patients receiving large dosage. Since the extract is now obtained practically free from protein, none of these reactions need be anticipated. The time of administration, in relation to the meal hour, has already been referred to; if more convenient, there is no objection to giving the dosage just after meals. In some of our cases it has been possible to decrease the dosage of insulin, or even omit one or two doses; in one child it has been possible to discontinue the drug altogether, in spite of which the blood sugar remains normal on his former diet. This would suggest that in some cases a definite improvement in tolerance takes place, probably as a result of the rest afforded the pancreas.

Precautionary Measures: Some individuals have obtained erroneous impressions about insulin. Although certain cases display a remarkable improvement in tolerance with its use, no cure has been reported. Further, careful dietetic control is even more important than without the use of insulin; the dosage is determined upon the assumption that the patient will ingest a definite quantity of glucose each day, and if this required amount is not taken an hypoglycæmic reaction will probably occur. On the other hand, insulin is no more dangerous than ether or morphine in the hands of those who are not familiar with their actions and limitations.

Hypoglycaemic Reaction: This is due to an overdose of insulin; it may occur in an instance where a patient receives too large a dose, or had received his dose of insulin and then refused to eat or could not eat his meal. It occurs as a result of the blood sugar falling to .070 per cent or less, and can be avoided or relieved by the ingestion of some form of glucose. The symptoms usually come on about two to four hours after the dose which produces them; they are extreme weakness, a feeling of prostration, profuse sweating, anxiety, increased pulse rate and increased rapidity of respirations. If the reaction is permitted to go on the individual may pass into coma, display muscular twitchings or convulsions and death may occur. As already stated the antidote is carbohydrate; the juice of an orange, a glass of milk, or several pieces of chocolate candy will relieve the symptoms almost instantly. If coma has already appeared, ten or fifteen minims of a 1/1000 solution of adrenalin chloride subcutaneously will rouse the patient sufficiently to drink orange juice. The intravenous injection of 50 c.c. to 100 c.c. of a 20 per cent solution of glucose may be necessary. The authors, in treating more than forty cases, have not seen a serious reaction and feel that there is no reason why they should be allowed to occur.

Coma: The results obtained with insulin in diabetic coma are quite spectacular. The treatment consists of the administration of ten or fifteen units of insulin every two or three hours. It is important that the urine should *not* be allowed to become sugar-free during this frequent administration of the drug. If the patient can be roused they should take the juice of one or two oranges each hour; in cases of deep coma or vomiting, glucose should be given intravenously in a ratio of about three grams of glucose for each unit of insulin. Treatment should be maintained until the urine is free from acid bodies and the symptoms have been relieved.

Several cases are reported here in some detail to show the method of treating (1) an uncomplicated case, (2) a case with acidosis, (3) a case of coma.

CASE C-168.—J. M., white, male, aged 17 years, 1 month. Was first seen January 26, 1921.

The Complaint was diabetes.

Family History was unimportant. There had been no diabetes or obesity in the family.

Past History was negative, except for measles at the age of 6 and otitis media at the age of 8 years. His average weight had been 84 pounds, (dressed).

Present Illness: During December, 1920, at the age of 14 years and 9 months, the patient became jaundiced and started to experience excessive thirst. Sugar was first discovered in the urine about one month later.

Physical Examination revealed nothing of importance except a furuncle of the left auditory canal with rather extensive invasion of the surrounding tissue. A casual specimen of urine contained 1.3 per cent sugar and gave a three-plus reaction for diacetic acid.

Course: Under treatment he rapidly became sugar-free and displayed a high tolerance. He did not adhere to his diet and gave up medical supervision. In January, 1922, he again required treatment for an infection of the left auditory canal, from which he rapidly recovered and regained a fair tolerance. In September, 1922, the patient again came under observation, weighing 73 pounds and showing a constant glycosuria.

Insulin Therapy was begun, but after a few days the patient discontinued treatment and left the hospital. He was next seen January 7, 1923, weighing 59 pounds and with blood sugar of 255 mg. per 100 c.c. He was started on a diet of carbohydrate 20 grams, protein 40 grams, fat 100 grams, or about 40 calories per kilogram and one unit of insulin three times daily at meal time. This diet was gradually increased to carbohydrate 40 grams, protein 70 grams, fat 150 grams, and the insulin dosage to 15 units after breakfast and 15 units two hours before supper. After 38 days in the hospital he was discharged on the above diet and insulin dosage, sugar-free, with a blood sugar of 250 mg. per 100 c.c. and weighing 65 pounds. He has remained constantly sugar-free and on April 28th his blood sugar was 120 mg. per 100 c.c. and his present weight is 98 pounds, (dressed).

Case C-3243.—E. R., white, male, aged 5 years, 7 months, was seen November 14, 1922.

The Complaint was diabetes.

Family History was unimportant. There had been no diabetes or obesity in the family.

Past History was negative except that the patient had had chicken pox at the age of 18 months, complicated by suppuration of several cervical glands, and an attack of tonsilitis one year previously. His greatest weight had been 40 pounds, prior to the onset of diabetes.

Present Illness: About August 8, 1921, at the age of 4 years and 11 months, the patient started to exhibit frequent enuresis and polydipsia. Several days later sugar was discovered in the urine. He was placed on a diet with practically no restriction of carbohydrate. In September, 1922, he became stuporous and drowsy for a time, but recovered. His height at the onset of diabetes was about 42 1/2 inches.

Physical Examination revealed no abnormality except marked general tenderness of the abdomen and a strong acetone odor of the breath. Naked weight was 31 pounds. A casual specimen of urine showed 5.0 per cent sugar and three-plus diacetic reaction. The blood sugar was 400 mg. per 100 c.c. He was unable to walk or stand because of weakness.

Course: The patient was placed at once in the hospital, and given a diet of carbohydrate 30, protein 20, fat 20. *Insulin Therapy* was started at once with a dosage of two units three times daily at meal time. The first four days the urinary sugar excretion varied between 11 and 25 grams daily, while the diacetic reaction rapidly decreased. On the sixth day the insulin dosage was increased to three units three times daily and on the following day the urine was free from sugar and diacetic acid. This dosage was maintained and the diet was gradually increased to carbohydrate 50, protein 50, fat 80, without sugar or diacetic acid reappearing in the urine. On the 24th day the patient was discharged upon the same diet and insulin dosage with a blood sugar of 105 mg. per 100 c.c. and weighing 33 1/4 pounds. This diet yielded about 75 calories per kilogram of body weight. On January 26, 1923, the insulin dosage was decreased to three units at 9:00 a. m. and three units at 5:30 p. m., and the diet maintained the same. This patient has been constantly sugar-free, has displayed no diacetic acid in the urine and on July 23, 1923, he weighed 42 3/4 pounds (dressed), and his height was 44 inches. He now runs and plays like a normal child. This case is illustrative of the type in which one must start the diet cautiously because of acidosis.

Case C-3414.—T. P., male, white, single, occupation weaver, aged 17 years, was seen April 15, 1923, in consultation in an adjoining town.

The Complaint was diabetes, and diabetic coma.

Family History was negative for diabetes and obesity.

Past History was essentially negative.

Present Illness began about March 1, 1923, with excessive dryness of mouth, polyuria, poly-

phagia, polydipsia and progressive weakness. On April 14th the patient went to bed because of extreme weakness and abdominal pain and vomiting. When examined by his physician sugar was found in the urine. The following day the pain and vomiting had disappeared, but the patient had become rather drowsy and was roused with some difficulty. He had had no fever.

Physical Examination: The skin was quite dry. There was a slight acetone odor of the breath, the respirations were rather deep and quite rapid, and the pulse was rapid and of poor volume. There was no elevation of temperature. The knee kicks were not obtained. A casual specimen of urine gave a marked test for sugar but showed no diacetic acid. The hæmoglobin and red blood-cell count were normal. The white blood-cell count showed 23,200 leukocytes, of which 82 per cent were polymorphonuclear neutrophiles. A blood-sugar reading of 130 mg. per 100 c.c. had been obtained by the Epstein micro-method, but this was considered unreliable. The patient had received nothing by mouth during the preceding 24 hours except water and a quantity of sodium bicarbonate.

Treatment: In spite of the conflicting evidence it appeared that the patient was passing into diabetic coma. He was given 200 c.c. of orange juice and 15 units of insulin simultaneously. Thirty minutes later the same dose of orange juice was repeated and two hours after the first dose of insulin 15 units more were administered. The usual methods for combatting coma such as warmth, forcing fluids, free evacuation of bowels, etc., were instituted at the same time. Directions were left for the patient to receive 10 units of insulin every three hours and about three grams of carbohydrate to each unit of insulin, preferably in the form of orange juice, until symptoms disappeared. In case of vomiting glucose was to have been administered intravenously. During the first 21 hours of treatment the patient received the juice of 20 oranges, yielding about 200 grams of carbohydrate and 80 units of insulin during the same interval of time. This routine resulted in the complete disappearance of all symptoms of coma, and no hypoglycemia developed, as demonstrated by the persistence of sugar in the urine. Food was then administered cautiously, but the exact diet formula is not known as the food intake was not weighed. A blood-sugar determination upon the same blood which had yielded 130 mg. per 100 c.c. by the Epstein method, was performed in our laboratory by the method of Folin and Wu upon the following day with a reading of 740 mg. per 100 c.c. of blood. A specimen of blood plasma obtained immediately after the first dose of insulin gave a carbon dioxide combining power of 26.6 mm. of mercury, and a plasma-sugar reading of 800 mg. per 100 c.c. of plasma. We have learned from the attending physician that the patient, although not sugar-free, is doing very well, except for a discharging ear which developed the day after the patient was seen in consultation. A blood-sugar reading performed in our laboratory upon a specimen of blood received by mail on April 27th gave a result of 148 mg. per 100 c.c.

It should be emphasized in closing, that not every case of diabetes should receive insulin therapy; it should be reserved primarily for those individuals who cannot tolerate a maintenance diet and carry on their bodily activities without excreting sugar in their urine. The mild cases of diabetes require dietetic management and education, and if they are thus able to remain sugar-free, maintain an almost normal weight, and have sufficient strength to carry on their occupations, they are not subjects for insulin therapy.

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NEURALGIAS OF THE TRIGEMINAL NERVE.

E. H. Clarkson, D. D. S.,

Jacksonville, Fla.

The trigeminal nerve is subject to two types of neuralgia. First, symptomatic pains; second, spasmodic pains or tic douloureux. The symptomatic pains are by far the most frequent. They may be supraorbital, infraorbital, supramaxillary, intramaxillary, dental and mixed form. The most common type is the supraorbital, and next, the mixed form.

The trigeminal or fifth cranial nerve is one of the most extensively distributed and most delicately sensitive nerves of the body. It supplies sensation to the face, conjunctiva, nose, frontal and maxillary sinuses, teeth, palate, tongue, and part of the upper pharynx; also to the scalp as far back as the vertex and to the external auditory meatus; gives sensation to three-quarters of the dura mater and probably the tentorium. In addition to the trigeminal supplying the above parts with sensation, it supplies them with trophic, vasomotor and secretory fibers.

The vasomotor fibers are brought to it from the medulla and cervical spinal cord via the sympathetic. The secretory fibers have the same origin. The trigeminal nerve likewise supplies motion to the muscles of mastication. The sensory part of this nerve is subject to sensory neuroses, such as neuralgia, paresthesia and anesthesia.

Trigeminal neuralgia is closely related to dental practice and aside from its etiological diagnostic relation and treatment of the terminal reflex neuralgias which are directly connected with maxillary and dental lesions, the complex problem of trigeminal neuralgia is essentially one which concerns the oral surgeon.

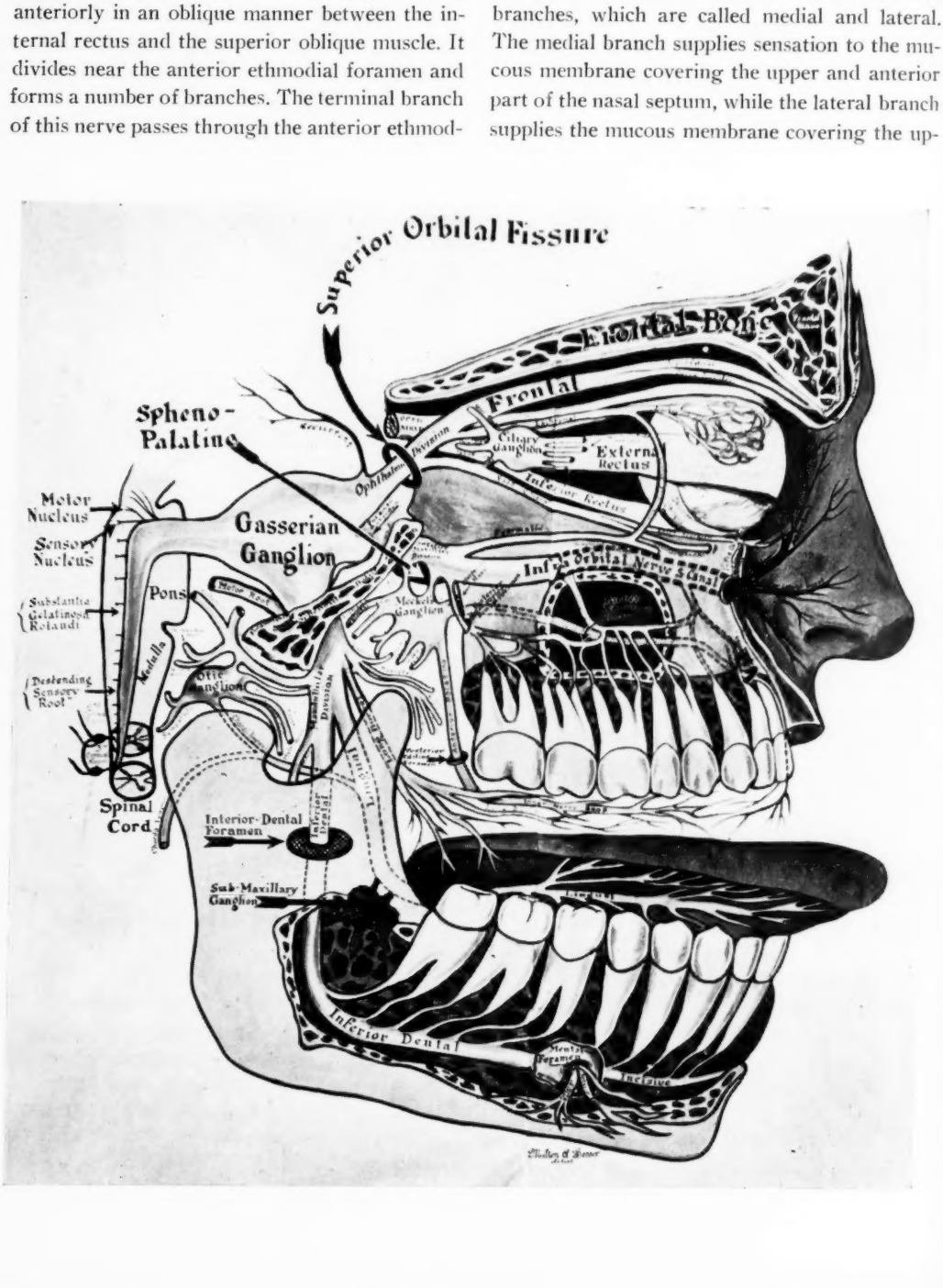
Referred Pain:—Pain may be produced by either a distant or local cause; for example, an exposed or irritated pulp may cause pain in its immediate region as the nerves supplying the dental pulp are the peripheral endings of the large trunk through which pain impulses are transmitted; or the pain may be located at a distant point, such as neuralgia in the ear, or occipital headache, due to the direct relationship of the surrounding parts. You should remember that the area of referred pain is not sensitive to pressure if the pain is actually referred, but if it is of local origin the tissue in the immediate region is painful on pressure. Referred pain can be caused by pressure, injury, trauma or irritation of a sensory nerve at a distant point. This stimulation is transmitted over certain sensory nerve branches to a remote part and there interpreted as pain. A common example of referred pain, which every dentist has no doubt experienced, is that a patient will complain of pain in a certain tooth, and upon examination it will be found to be perfectly healthy and free from caries or irritation and instead a large cavity will be found in the opposite jaw, the pain being referred by the connecting nerve branches. When the proper treatment was applied to the cavity the patient was relieved. Many times it is hard to convince the patient that the pain is not located in the tooth in which there was no pathology present.

Neuralgia is a condition characterized by pain in the course of a nerve trunk or trunks; therefore, it is not a distinct disease but only a symptom and the modern trend is to discard this term, except to indicate a nerve pain. Many pains formerly called neuralgia were really due to neuritis, reflex irritation or to some form of organic disease, although there is a certain percentage of persistent nerve pains for which no organic etiology can be discovered. Therefore, both as a matter of convenience and necessity, we will still cling to the term neuralgia. However, we attempt to classify it in accordance with its etiology and location.

There are a number of neuralgias, such as hysterical, gouty, neuratic, cervical, trigeminal, brachial, etc. Neuralgia is also spoken of as symptomatic or idiopathic, according to whether or not we know the etiology of the pain. The careful and observing physician or dentist has little or no use

for the term idiopathic inasmuch as in most cases the basis of the pathology may be determined.

To illustrate the theory of referred pain, take for example the nasociliary nerves. This nerve is given off from the first or ophthalmic division and passes anteriorly from the superior orbital fissure and enters the orbital cavity, proceeding anteriorly in an oblique manner between the internal rectus and the superior oblique muscle. It divides near the anterior ethmodial foramen and forms a number of branches. The terminal branch of this nerve passes through the anterior ethmodial foramen and is called the anterior ethmodial, and after passing through the foramen enters the substance of the ethomoidal bone, thence through the nasal fissure, entering the nasal cavity which supplies the mucous membrane located in the anterior superior part of the nasal septum. The anterior ethmoidal nerve is divided into two branches, which are called medial and lateral. The medial branch supplies sensation to the mucous membrane covering the upper and anterior part of the nasal septum, while the lateral branch supplies the mucous membrane covering the up-



per lateral wall of the nasal cavity, later appearing upon the face under the name of the external nasal nerve, which supplies the skin of the tip of the nose with sensation. The sensory fibers of the nasocilliary nerves are enclosed within the first or ophthalmic division of the fifth nerve with the fibers of the frontal, supra-orbital and supratrochlear nerves which supply the supraorbital and frontal region. It is a well known fact that the pathology which involves the nasocilliary nerves may produce neuralgia of the forehead and scalp region by the radiation of pain transmitted along the path of the frontal, supraorbital and supratrochlear nerves with which they are closely associated.

Another example of the referred pain is the neuralgia which manifests itself in the ear, caused by a carious tooth located in either the upper or lower jaw. This is due to the relation of the facial nerve to the fifth or trigeminal. The pain is produced in the ear through the tympanic branch, which passes through the tympanic membrane and is associated with the auriculotemporal nerve through which the third or mandibular communicates with the external auditory meatus.

A frontal headache may be caused by a carious tooth, infection of the antrum, pulp stones, alveolar abscess, and eye strain. To locate the etiology of referred pain, the operator must be a keen diagnostician and search for the direct cause by careful physical examination and by the process of elimination. Many nerve trunks have been blocked with alcohol to give the patient relief, the cause of the pain having been overlooked by the operator, while if located and the cause removed no deep nerve block would have been necessary.

There is no pain so severe and agonizing as that of trifacial neuralgia or tic douloureux. In mild cases the patient may suffer only intermittently, sometimes going for days, weeks or months without an attack, but without a moment's notice the patient may be seized with a severe attack. In the worst types of cases the pain may be agonizing and practically continuous and in most cases associated with spasmodic facial contractions.

The etiology and pathology of symptomatic neuralgia are more or less obscure, for in a great number of patients no lesion can be found of the trigeminal nerve or Gasseriam ganglion. In the symptomatic type of neuralgia the female sex is more often affected. Most cases are found in the first half of life and generally manifested during the spring or winter and the left side being more often involved. The superior maxillary and mandibular divisions of the trigeminus are more susceptible to the so-called rheumatic influences, while the first or ophthalmic branch is more susceptible to malaria or septic poisonings. There is no question but that alveolar abscesses, decayed teeth, sinus infection, pulp stones, abnormal roots, inpacted or unerupted teeth, malformed teeth and necrosed bone have played an important role in producing the symptomatic type of neuralgia, predisposing to tic douloureux. Ocular, nasal, antral or frontal sinus disease may be the cause of neuralgia in the supraorbital nerve. Hysteria, malaria, epilepsy, syphilis, focal infection, trauma, neuritis, chronic tonsolitis and tumors may be the important factors in causing trigeminal pains. A carious tooth, alveolar abscess, tumors or empyema of the antrum are very often the cause of trifacial neuralgia of the second division; whereas an impacted lower third molar is very often the cause of mandibular neuralgia.

Etiology and Pathology of Tic Douloureux: Tic douloureux is a special form of trifacial neuralgia which occurs in middle life and is usually very severe in its symptoms. It should always be distinguished from the ordinary or symptomatic form of trifacial neuralgia. Tic douloureux is a special disorder, and in most cases is dependent upon changes in the nerve itself. The peripheral or extra-cranial reflex and the central or retro-ganglionic types of trigeminal neuralgias may be caused by some form of intracranial or cortical pathology, such as tumors, gumma, etc.

The various forms of psychoneuroses which so often attack the fifth cranial nerve are purely symptomatic and are only secondary manifestations of other pathological conditions. These conditions will in most cases yield to treatment other than that which is necessary to arrest or remove the primary pathology of the nerve trunk, which is recognized as tic douloureux. Tic douloureux is no doubt due to either a toxic or to an atrophic process which exists at some point in the various

nerve branches, Gasserian ganglion or brain. A low grade neuritis which may be caused by infection, such as alveolar abscess, empyema of the antrum, or impacted third molar with infection, as a rule does not show changes in the nerve branch, but the small arteries which supply the nerves are bound to undergo an endarteritis which causes their caliber to decrease and prevents the nerve from receiving its proper nourishment. In some cases the Gasserian ganglion has shown degenerative changes, but these have been considered purely secondary. In these cases the operation for the incision or removal of the nerve trunk itself eliminates the pain. Therefore, these degenerative changes have not as yet proved a causative factor of tic douloureux.

In some cases neurotic changes have been found, such as an increase in connective tissue or increased vascularity, but even the cause of this pathological change has not been determined, although it may be considered the result of former treatment, such as the injection of alcohol into the nerve branch which has produced the neurotic changes. There may be impingment upon the nerve trunk by an exostosis or tumor.

Within recent years it has been found that in some of the cases where the Gasserian ganglion has been removed, a definite bony protuberance situated on the superior aspect of the anterior surface of the apex of the petrous portion of the temporal bone and anterior to the Gasserian ganglion, extending into the substance of the Gasserian ganglion. Without doubt, this extension of bone is an exostosis and a possible causative factor in the production of the symptoms of tic douloureux. Those patients in whom the exostosis and the impinged ganglion were found, experienced pain in all three branches of the fifth nerve.

Syphilis, causing the formation of a gumma, extreme exposure, infection and other depressing influences are many times the etiological factors, together with pathological conditions existing in the orbit, empyema of the antrum, frontal sinus involvement are very often the cause of the symptomatic type of neuralgia.

The symptoms of tic douloureux are characterized by severe, agonizing, shooting pains, which, in most cases, begin in the region of the nose, jaw, or upper and lower lips, and from this location radiate through the teeth into the orbital cavity, or even over the temple, brow and forehead. During a severe paroxysm, the patient's face is highly flushed, usually pinched and drawn. Increased lacrimation, running from the nose, spasmodic contraction of the facial muscles and tongue may occur, with the patient groaning and manifesting an expression of extreme agony. Often the patient experiences only a single attack lasting from one to several minutes. Returning attacks are, however, not unusual, and if this is the case, each additional one may be less intense than the one previous. The paroxysms in tic douloureux may be started by the patient in speaking, eating, moving of the tongue, the touch of the finger to the face, taking of liquids or food in the mouth, swallowing or taking of sweet or sour things, the slamming of a door, a draft of air, or the inhaling of cold air. In taking food or drink the paroxysm is more likely to be brought on if the substance taken is either sweet or sour, but the fact that the food or drink is either hot or cold is not a factor in bringing on the paroxysm; so the beginner need not confuse tic douloureux with pulpitis. A delicate touch, such as the weight of a fly will bring on a paroxysm more quickly than will a heavy pressure, such as the slap of the hand. In fact, the patient upon the approach of a paroxysm, will suddenly slap his hand heavily over the affected part and begin a vigorous massage, all the while smacking the lips and drawing the mouth toward the opposite side. The patient experiences more difficulty and pain during the fall and winter months and in some cases may entirely escape an attack during the summer months. The pains during the attacks are always located on one side of the face and in most cases are centered in one branch of the fifth cranial nerve, the second, or maxillary division, being more often involved, the next being the third, or mandibular division. However, the pain may not remain in the region of these two branches, but may spread to the whole side of the face. In addition to these symptoms, there are often associated with the pains spasmodic contractions of the facial muscles and tongue or the lower jaw presents quick movement. The patient may be awakened and spend many sleepless hours. There

may be in some cases, impairment of nutrition, as the patient may not eat for fear of starting another attack. Depression of spirits is present in many cases, for the pain the patient suffers is one of intense agony. The clinical picture in various individuals differs considerably. Some patients will not talk, eat or drink, and if they do they will attempt to confine the food to one side of the mouth, all of which is done in an attempt to ward off an attack. Some patients will not wash one side of their face or brush their teeth on one side for fear of causing a severe paroxysm of pain. In most cases the pain begins in one definite spot and radiates in various directions, involving only the side of the starting point. When the pain subsides, it usually returns in the same spot where it previously began and radiates in certain directions. Later on, several pain centers may develop and pain begin simultaneously in all of them, or may take turns radiating from one to the other. The pain may be situated over the nerve in which it first appears, later involving a number of branches. Patients who have suffered for years with this condition become somewhat accustomed to the painful attacks. However, they show great evidence of extreme pain during the paroxysm but learn to control their outcry.

In the diagnosis and treatment of patients supposed to be suffering from tic douloureux a thorough and careful examination should be made. First: One should ascertain the exact condition. Second: A Wassermann test should always be made in order to find or rule out syphilis. Third: One of the most important diagnostic aids in determining the etiology of this condition is roentgenograms of the teeth and osseous structures, antrum and sinuses, more particularly, the frontal sinus. The X-ray plate should be used to rule out the presence of pulp stones, abnormal roots, malformed teeth, unerupted or impacted teeth, supernumerary teeth, necrosed bone, and empyema of the antrum. In connection with the X-ray plate showing the frontal and maxillary sinuses, transillumination is of value. The time element is one of the strongest points in diagnosing tic douloureux, the more recent cases requiring careful study.

Treatment of trifacial neuralgia is of great importance to the medical and dental profession. Its treatment is of fourfold character and is as follows:

1. Medicinal or palliative.
2. Neurectomy and neurectasis.
3. Block anesthesia.
4. Removal of the Gasserian ganglion or its sensory root.

It is well to resort to medicinal or palliative treatment, for it will assist in verifying the diagnosis. If a positive Wassermaann is obtained, then by all means rigid treatment for syphilis must be given. There is no specific drug treatment for the cure of facial neuralgia. Some drugs have been used with a variable degree of success. Nitroglycerin given in doses of 1/200 of a grain every two hours. Tonics containing such drugs as phosphorus, iron, arsenic, strychnin and quinine are also employed. It is always well to give the patient a thorough course of systematic treatment before resorting to surgery. Such treatment to include besides the drugs previously mentioned, diet, rest in bed, local applications of heat or cold and massage. By treating the patient in this manner no harm will be done, and if it fails, there is plenty of time to use other forms of treatment. In practice, at the present time, the treatment of the essential and confirmed disease of the trigeminus is limited to a choice of, first, alcoholization of the nerve trunks at their origin from the basal foramina; second, alcoholization of the Gasserian ganglion; third, gasserectomy or intracranial division of the sensory root of the fifth nerve as it enters the ganglion. The ideal treatment in all forms of neuralgia would be to obtain a cure of the neuralgia or pain without leaving behind a permanent anesthesia of the region tributary to the affected nerve, or causing secondary trophic lesions of a neuro-paralytic character such as follows in the anesthetized eye, after destruction of the ganglion either by alcohol or operation. The cure of the neuralgia without the trophic lesions, so much dreaded in the eye, which follows extirpation or alcoholization of the ganglion can be largely avoided by the proper selection of the surgical method of treatment adopted.

PROPAGANDA FOR REFORM

J. T. Ainslie Walker's Latest Intestinal Disinfectant.—About a year ago, a flood of reprints mailed from London reached the editors of the American medical journals and others. The reprint dealt with "A New Suggestion in the Treatment of Puerperal Eclampsia," by Captain J. T. Ainslie Walker. The reprint was to the effect that as "the problem of intestinal disinfection has been solved" rational treatment of the condition was greatly simplified, but it was not stated how the problem of intestinal disinfection had been solved. A few months later, the same editors received reprints which dealt with "Dimol" in the treatment of summer diarrhea in infants, and an article by A. N. M. Davidson. Still more recently, American medical editors have received a pamphlet mailed from England which purports to be a book sent for review. This pamphlet is an obvious puff for Dimol by J. T. Ainslie Walker. Dimol is a preparation introduced by J. T. Ainslie Walker of England, and is sold in this country by the Anglo-French Drug Co. Some time ago Mr. Walker was connected with the Barrett Manufacturing Co., to exploit "Pyxol," a proprietary disinfectant resembling compound solution of cresol. Later, Mr. Walker introduced his first "intestinal germicide" under the proprietary name "Trimethol." This preparation, which was reported on unfavorably by the Council on Pharmacy and Chemistry, appears to have been very similar to the product now exploited as Dimol. Mr. Walker would have us believe they are different, but the American agent of Dimol makes this claim: "Dimol is the registered name for the product known in the U. S. A. in 1914 under the name 'Trimethol' ". (Jour. A. M. A., October 6, 1923, p. 1234.)

Colorless Iodin Preparations.— The so-called colorless iodin preparations do not contain iodin in the free state, but some form of combined iodin, chiefly iodid. For instance, Tinctura Iodi Decolrata, N. F., is a solution of sodium iodid and ammonium iodid obtained by mixing iodin and sodium thiossulphate, stronger ammonia water and alcohol. When tincture of iodin is used externally, it is with the view of obtaining the therapeutic action of free iodin. Since the colorless iodin preparations do not contain free iodin, their external use as a substitute for tincture of iodin is irrational. When tincture of iodin is given internally the free iodin contained in it is converted into iodid before absorption. Therefore, tincture of iodin and the so-called colorless iodin preparations given internally have essentially the same therapeutic effect. However, if a colorless iodin preparation is to be administered, it would be simpler and more rational to administer sodium iodid. (Jour A. M. A., October 20, 1923, p. 1383.)

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Fisher's Uterine Tonic (Fisheropathic College Association), containing ammonia, traces of ammonium salts, including iodid and carbonate, vegetable extractives, glycerin and water. Fisher's Kidney Food (Fisheropathic College Association), containing a small quantity of vegetable extractives, citric acid, sugar, alcohol and water. San-Yak (Burnham Medical Co.), composed essentially of alcohol 7.0 per cent, plant extracts, including cinchona and a laxative drug, 2.4 per cent, and water 92.0 per cent. Plough's Prescription C-2223 (Plough Chemical Co., consisting essentially of potassium iodid, extracts of plant drugs, including colchicum, a trace of salicylic acid, glycerin, alcohol and anise flavoring. Chicawampa Tea (Chicawampa Tea Co.), consisting essentially of cut herbs, principally the Ephedra nevadensis (known locally as "Caynote" or "Canutlio") with small proportions of peppermint and sage. (Jour. A. M. A., October 20, 1923, p. 1380.)

Van Ess.—The Van Ess Laboratories, Inc., Chicago, put out "Van Ess Special Dandruff Massage" and "Van Ess Liquid Scalp Massage." "Van Ess" is sold with the claims that it will make hair grow and that it will stop falling hair in two weeks. The A. M. A. Chemical Laboratory reports that Van Ess Special Dandruff Massage is a perfumed liquid which separates into two layers on standing. The upper layer consists essentially of a petroleum oil which appears to be kerosene. The lower layer appears to be composed of water and alcohol containing small amounts of quinin sulphate, coloring matter and perfume. The Laboratory concludes that it is probably that a mixture of 35 parts of kerosene, 15 parts of alcohol denatured by the addition of 2 grains of quinin sulphate per fluidounce and 50 parts of water would have whatever therapeutic properties the Van Ness Special Dandruff Massage possesses. (Jour. A. M. A., October 27, 1923, p. 1461.)

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A WARNING.

The word **POISON** is printed here in 24-point size type. A label this size in red capital letters is required by our state law to appear on all containers of lye sold in Florida. Any person or copartnership or corporation violating this law is guilty of a misdemeanor and upon conviction shall be sentenced to pay a fine of not more than one hundred dollars and the costs of prosecution, or imprisonment of not more than 90 days.

A PERTINENT ARTICLE ON LYE PREPARATIONS.

*Clerf reports a series of twenty cases admitted during the sixteen months preceding the publication of his paper. The chief symptoms were water and food starvation from stenosis of the esophagus. Each patient had at some previous time ingested some form of lye preparation obtained from containers improperly labeled as to their poisonous contents.

The ages varied from 22 months to 58 years; the time that had elapsed between the ingestion of lye and the admission to the hospital ranged from 3 weeks to 37½ years; the symptoms on admission were more or less urgent in a majority of the cases.

Of the twenty cases reported 3 terminated fatally, and 14 were subjected to operation (gastrostomy) for the purpose of feeding. The routine treatment was dilation, by passing a bougie through the esophagoscope in the cases not subjected to operation, or by retrograde dilation in the cases operated on. Preliminary X-ray and esophagoscopic examinations were carefully made.

Beneath one of the illustrative cases is inserted a reproduction of the label that appeared on the lye container; it does not indicate the poisonous nature of the article.

Among the twenty cases are these:

CASE 8.—A boy, aged 5 years, was referred, March 27, 1922, by Dr. J. J. Reilly, because of inability to swallow solids and frequent regurgitation of liquids. About four weeks before admission, the child swallowed some liquid which produced severe burns of lips, mouth and throat.

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*Clerf, Louis H.: Cicatricial Stenosis of the Esophagus Caused by Commercial Lye Preparations. (From the Bronchoscopic Clinic, Jefferson Hospital.) Jour. A. M. A., Vol. 80, No. 22, June 2, 1923.

The mother stated that there was some lye in the house, but is not certain whether this was swallowed by the patient. Difficulty in swallowing resulted and became slowly worse, so that only liquids could be swallowed. There was progressive weight loss. Roentgen-ray examination by Dr. W. F. Manges showed almost complete obstruction of the upper esophagus.

On esophagoscopy, a stenosis of the esophagus was found, ending in a blind fistula. Because of the emaciation and the continued failing of nutrition, gastronomy was advised. This was done by Dr. T. A. Shallow. The patient did not react well, and subsequently died. A necropsy was not permitted.

CASE 16.—A girl, aged 22 months, referred by Dr. C. Heard, Aug. 14, 1922, was unable to swallow anything but liquid foods, and these only in small quantities. There was moderate loss of weight and a mild degree of anemia. Nine weeks before admission, while playing in the yard, the child found a can of "Babbitt's Lye" and put some of it in her mouth. There were severe burns about the mouth and lips. Progressive dysphagia ensued. A gastrostomy was done by Dr. T. A. Shallow because of aphagia. Roentgen-ray examination by Dr. M. A. Almy showed a partial stenosis of the esophagus. Esophagoscopy revealed a tight stricture about 4 cm. below the cricopharyngeus. Retrograde dilation is being carried out.

CASE 20.—A girl, aged 2 years, was sent to the clinic Nov. 4, 1922, by Dr. Charles H. Hunt, because of dysphagia for all but liquid foods. Four months before admission, she drank of a solution of "Kleanall," which had been left in a cup. Together with burns of the mouth there was dysphagia, which slowly increased, with marked loss of weight. About three months after the accident, the patient was unable to swallow even liquids; so a gastrostomy was performed immediately by Dr. Hunt. The general condition on admission was good. Roentgen-ray examination by Dr. W. F. Manges showed a marked obstruction of the upper esophagus. On esophagoscopy, marked narrowing of the esophageal lumen was found. Retrograde dilation is being done.

In conclusion the author comments in full on several pertinent features of the question as follows:

No Soaking Beware of Imitations **No Rubbing**

DIRECTIONS.

For washing white clothes, flannels and colored clothes of fast colors fill boiler one-half full of cold water; dissolve one-third of an ordinary size bar of soap and put into it; add one teacupful of THE FLUID. Then put clothes in boiler and if they absorb sufficient water so that it does not cover them add more water. All the clothes should be submerged in water when boiler is placed on the stove. After water begins to boil allow it to boil 20 minutes, stirring clothes occasionally during the boiling process, then remove the clothes and rinse in two waters to take out all the soap. Examine the fabrics and they will be found clean and snow white, and ready to hang on the line to dry. In extreme cases, such as the neck and wristbands of shirts it may sometimes be found necessary to rub these parts slightly between the hands, but for all ordinary articles NO RUBBING whatever is necessary, and no WASHBOARD is required. It will do no harm to put clothes in soak over night in clear water, but even this is unnecessary unless extremely soiled.

THE FLUID is free from lime or acids and cannot possibly injure the finest fabrics. It makes the hands soft and smooth. For the second boiler of clothes use the same water without adding more FLUID or soap, but before putting the clothes into it dip them into cold water. Dry clothes should never be put into boiling water, as it is liable to set any stains which may be on them. For house cleaning, washing floors, greasy dishes, paint, etc., pour a small quantity in water, and add a little soap. For washing windows and glass, use no soap. Use strictly according to directions and THE FLUID will do the work perfectly and save much hard labor.

THE FLUID is far superior to Ammonia and much cheaper."

CONTENTS OF THIS PACKAGE MAKES TWO GALLONS OF WASHING FLUID

KLEANALL

Softens the water and has a most wonderful Cleansing and Bleaching Power, removes all Grease and Dirt and DOES NOT INJURE the finest fabric or the most Delicate Skin, if used according to directions.

PREPARED BY

KLEANALL MANUFACTURING COMPANY

HAVERHILL, MASS.

Net weight not less than 16 ounces

DIRECTIONS—Dissolve the contents of this Package in two gallons of water, shake well until it is dissolved and then follow directions on the other side of label. Keep the Fluid in a stone jug or crock.

Form 55-22-11

This child swallowed a teaspoonful of Kleanall Lye, which had been left in a saucer. It was not known that this lye was poisonous, for nowhere on the label was there anything to show that it was a poison.

"In these cases, as in practically all cases of esophageal stenosis resulting from lye preparations, an analysis of the circumstances attending the ingestion of the alkali reveals several points of interest.

"The swallowing is practically always accidental, the lye, in powder or solution, being left within reach of the child, or put on the kitchen shelf with other containers and mistaken for one of these. Sometimes it is a residue adhering to a cup which has been used to measure lye. This apparent carelessness is due to a lack of knowledge of the highly poisonous nature of all lye preparations. Since lye may be purchased anywhere, and since the labels on the containers either have no poison or warning notice, or, if present, it is usually inconspicuous, it is readily seen that education as to the poisonous nature of lye is only by bitter experience.

"Viewing the matter purely in the abstract, it is difficult to understand why necessary legislation has not been provided to prevent these pathetic occurrences by adequate 'scare labels,' especially when, on every hand, efforts are being made to protect against disease, to safeguard against injury, and to prolong life.

"Poisoning, due to the accidental swallowing of poison sold by druggists, is relatively uncommon, and this is due in great part to the profound respect inspired by the 'skull and cross bones' and 'poison scare labels' which are required by legal regulations to be placed on these containers.

"Similar precaution could be taken with lye preparations to warn the public of the highly poisonous nature of these substances. It would then be very properly stored in a safe place beyond the reach of these poor, innocent children. A careful presentation of this question to legislators and manufacturers from the humane side, as well as a consideration of its economic aspects, should convince them of the necessity of remedial measures.

"This is a review of a pathetic condition which is the cause of much suffering and distress to these innocent patients, who are in this state because it was not known that lye was a poison. That this disease is preventable is obvious. The essential point is that parents do not fully realize that these preparations are poisons."

OUR JOURNAL.

The officers of the Florida Medical Association and the staff of THE JOURNAL are bending every effort to make the official organ one that is really of value to every reader and a credit to our association. Much time, careful thought and effort is entailed in the production of a scientific periodical.

The backbone of any medical publication is the quality and quantity of original articles published therein. Each year the essays presented at our annual meeting are printed in THE JOURNAL. However, these alone will not suffice to fill its pages. The editors, unassisted, cannot produce a satisfactory periodical, for we are dependent on the members of our association to furnish us with original articles.

Each member of the association should consider himself an integral part of THE JOURNAL staff and endeavor to assist in making our publication worthwhile. In the past this has not been done, but the responsibility of the production of THE JOURNAL has been forced into the hands of one or two men.

The staffs of the accredited hospitals of the state have been asked to forward such papers as may be read at their monthly meetings. Up to the present, only feeble response has been made.

The success of THE JOURNAL rests in the hands of each member of the association, and it behooves you to assist in its publication either by the writing of an original article or the stimulating of some other member to contribute. THE JOURNAL is yours and the success of it is dependent on your efforts.

WHAT AMERICAN MEDICAL AID IS DOING IN RUSSIA.

PLANS FOR WORK OF COMING YEAR.

Plans for the coming year's medical work of the Friends' Relief Mission in Russia have recently been completed. This work is supported by the American Friends' Service Committee, 20 South Twelfth street, Philadelphia, through its medical section: American Medical Aid for Russia. Local and state branches of the latter have been organized by medical leaders in many parts of the United States.

The new plans for the work on the field were drawn up by Dr. Elfie Graff, head of the Mission's Medical Department, in conjunction with the medical authorities in Moscow. They follow

the lines on which the government itself would work if it had resources to carry out intensive programs of this kind.

Dr. Graff feels that all the plans of the Narcomzdrav (Commissariat of Public Health) are thoroughgoing and up-to-date, that they have as comprehensive an understanding of the needs and necessary remedies as can be found in any country in the world, and that they are superior to most other countries in the extent to which the government is taking cognizance of the work, especially that in connection with the care of mothers and babies.

The first division of the medical program of the mission, and one that can be carried out at once, is assistance to hospitals, already existing, in equipment and repair, in supplying sheets and blankets, medicines, etc. The Friends have until this time given a certain amount of help to hospitals in feeding them, and furnishing clothing, but it has been very inadequate. Most of the hospitals in the district have had only a negligible amount of medicines, and almost none of the most simple kind of equipment, such as thermometers, hot-water bags, and other necessary things.

The second point is the continuing and enlarging of the present antimalaria work. At the present time there are two clinics, one in Sorochinskoye and one in Buzuluk, each of which has up to the present time received over 7,000 persons for blood tests and quinine treatment, and each of which is taking in new patients at the rate of 100 a day. The only limitation to this work has been the lack of quinine, but the new program provides for enough quinine to continue these clinics and open new clinics in the outlying districts so that the people who have no horses to take them to get treatment somewhere else may have a clinic in their own or a nearby town. In connection with this work, an engineer is to be secured through the government and plans will be made to drain the stagnant water that lies around most of the villages, where the malarial mosquitoes breed. A general agitation for sanitation will be carried on, lectures will be given on mosquitoes and malaria, and posters will be sent out by the Department of Health.

The third point is the Child Welfare work. As a first step in this comes the government's program of reducing the number of children in Children's Homes to an absolute minimum, so that as much energy as possible may be concentrated on keeping the general population in health. To help accomplish this it is proposed to open day-nurseries in the villages in the summer time so that there may be some care for the very young children while their mothers are working in the fields and gardens. The latter are usually far away from the house, so that many of the peasant children are neglected all through the day. It is also proposed to open children's consultations and pre-natal clinics so that there may be special medical care for children outside of institutions, and advice and help given to nursing and expectant mothers. Wherever necessary, it is proposed to give special food relief to widows without resources and with more than one child. Increased medical inspection in institutions and schools will also be necessary. For this additional Russian physicians will have to be brought in by the mission or local doctors paid or rationed, if available for the work, as the local authorities are too poor to stand any additional burdens. In addition to aiding any institutions already existing to the limit of the mission's capacity, it is proposed to open additional institutions for delicate and defective children, such as summer homes for vacation purposes, institutions for tuberculosis, orthopedic, and mental defectives.

And finally—in preventive and educational work among the children—it is suggested that there be a general nutrition campaign in all closed institutions, or wherever full diet is possible; that posters, cards, songs, verses, etc., be used, and that the children themselves be employed in a general health campaign such as "Clean-up Week," "Antimalarial Work," "Swat the Fly," contests, etc.

The final point in the program is assistance in the struggle against venereal diseases. It is not known at the present time just how much can be done along this line, but the government made a special appeal for help in this connection because of the alarming spread of venereal disease since 1914, and the inadequate means of dealing with it. The situation of a huge army camp in Buzuluk makes this problem particularly grave in the district, where the Friends are working.

This, in outline, is the plan submitted for the future medical work of the Friends, with the full approval of the Health Department of the government. Dr. Graff received a great deal of help in Moscow from the medical authorities, particularly from Dr. Lebedeva, who is in charge of the Mothers and Babies' Division, and who is

working herself to death in her efforts to put into effect some of the splendid plans of her department for the protection of the coming generation. Through Dr. Lebedeva, Dr. Graff was able to visit various institutions in Moscow, and was greatly impressed by the things they have been able to accomplish in spite of a pitiable lack of material resources. But in Moscow they have devoted people who work night and day to carry out the program. The main difficulty is in the provinces where they lack not only material equipment but trained personnel, and where it is often difficult to secure the cooperation of ignorant local officials on whom the support of the work depends.

The Friends workers have had ample opportunity to observe how crippled the local health department is, during their year and a half of famine relief work in Buzuluk and Pugachev counties, and they know too well that it would be a long time before there could be even a beginning of such a program as suggested if the local people had to carry it on themselves. The central government is too poor to carry more than 2 per cent of the needs in the provinces. The local Department of Health has practically no funds at its disposal, and the local peasants are already so burdened with taxes that it is impossible to expect much from the general community. So the lives and health of the people in Bubuluk and Pugachev, suffering from malaria, from under-nourishment, and most of all from ignorance of the most ordinary way of taking care of themselves, depend on the mission's ability to bring in enough material aid and trained workers to help carry out the program that the government would like to accomplish itself, but for which it has no means.

SURVEY OF EYESIGHT CONDITIONS.

A nationwide survey of eyesight conditions in American education and industry has been undertaken by the Eyesight Conservation Council of America, it is announced at the national headquarters of the Council in New York.

As to industry, the aim of the survey, according to Guy A. Henry, General Director of the Council, is to disclose the relation between defective vision and the efficiency of the nation's millions of workers. As to education, it is purposed to ascertain what steps have been taken by the schools to measure the extent of poor eyesight and to make effective preventive provision.

The Eyesight Conservation Council's survey, marking the start of the research program recently adopted by the Board of Directors, has set out to reveal the effect of incorrect vision upon production. It has prepared a questionnaire designed to show increase in individual performance, decrease in accidents, increase in production and decrease in spoilage. The extent of color blindness, the number of blind in one eye, the number totally blinded, hours lost due to eye accidents, equivalent wages for lost time, use of goggles, cost of eye protection service, and total number of eye injuries are other objectives.

This questionnaire has been sent out to the industrial and commercial establishments located in the principal cities of the country.

The Council will also endeavor to show "to what extent is any effort being made to place in suitable jobs those workers who have been permanently or temporarily disabled because of eye injuries," and whether any attempt is being made to carry out the National Safety Code for the Protection of the Head and Eyes of Industrial Workers as prepared by the United States Bureau of Standards.

In the school survey, the Council is trying to reveal what provisions are being made to eliminate glare from unshaded light sources, windows, polished surfaces, blackboards, etc. One of the most important questions to which the Council seeks to provide a satisfactory answer is the relationship of defective vision to retardation. The Council's school survey extends to practically the entire Union. A questionnaire has been prepared and sent to schools and colleges generally.

Previous investigation, it is stated, has revealed alarming conditions of vision which must be remedied if national physical deterioration is to be avoided. The Hoover Committee on Elimination of Waste in Industry of the Federated American Engineering Societies found that industrial waste was due in considerable measure to faulty vision. It is estimated that 25,000,000 gainfully employed Americans are thus afflicted. The Eyesight Conservation Council is conducting a national movement for the conservation of vision in the schools.

Statistics covering many years show that nine out of every ten persons over twenty-one usually

have imperfect sight. At thirty-one the proportion is larger. Above forty it is almost impossible to find a man or woman with perfect sight. It was learned by the examination of several thousand school children in one of our large cities that sixty-six per cent of them had defective vision.

Proper lighting of schools, it is said, will go far toward eliminating these evils. Glare, according to Prof. F. C. Caldwell of the Department of Electrical Engineering, Ohio State University, and a member of the Board of Directors of the Eyesight Conservation Council, is a prolific source of poor eyesight. Commissioner of Education John J. Tigert says that retardation of pupils is probably due in some degree to unfavorable vision.

The Eyesight Conservation Council is one of the organizations represented on the Sectional Committee which is to prepare a lighting code for the nation's schools. The code is being framed under the auspices of the American Engineering Standards Committee, with the American Institute of Architects and the Illuminating Engineering Society as joint sponsors.

EMPIRICISM AND SCIENCE IN MEDICINE.

Progress in medicine during recent years has been due in large measure to the efforts of two somewhat distinct groups of workers. One of these includes the clinicians, whose primary interest centers in the care and treatment of the sick. The other group is represented by the so-called laboratory workers—persons engaged in the study of the disciplines fundamental to medicine and sometimes inaptly termed preclinical sciences. In his address as chairman of the Section on Pathology and Physiology at the San Francisco session, Luckhardt[4] lamented the fact that the efforts of these two groups have rarely been concerned. No one can review the history of modern medicine without gaining the conviction that both types of workers have promoted its practice; and it requires no large perspicacity to discern that all of them are important in the advancement of the profession. Hence it was a timely note sounded by Luckhardt when he insisted that the mutual misunderstanding, so prevalent among even the best representatives of both groups, is due to profound ignorance of each other's work. As a rule, he says, the laboratory man has never had an occasion to observe with what care and scientific acumen the good clinician gathers and weighs his data before instituting a rational and effective theraphy. The clinician, on the other hand, rarely is in a position to observe and appreciate the resource, patience and pertinacity required of the laboratory man in order to solve a research problem the results of which are subsequently so readily susceptible of practical application.

An illustration of the effect of this reciprocal derogatory attitude appears in the history of cod liver oil as a remedy, recently reviewed by Guy,[5] of Yale University School of Medicine. She points out that Rosenstern wrote in 1910: "Cod liver oil is in the forefront of children's remedies. For long it has been struggling against the skepticism of exact science." This comment deserves to be driven home to those who tend to develop that most reactionary it-can't-be-done attitude. Guy reminds us that in each country the experience was the same: Cod liver oil was used by the fishing people and peasantry; and then accidentally observed by some physician, tried by him, and so made known generally to the profession. At first, it was used in chronic rheumatism and gout; then, naturally enough, in other bone and joint diseases, notably rickets and osteomalacia (which was considered closely allied to gout); then in scrofula, because of its supposed identity with rickets, and finally in other forms of tuberculosis.

Today, even though we cannot "explain" the action of cod liver oil, its beneficial action in various conditions has been placed on a rational basis. The "healing potency" can be demonstrated by measurable changes under controlled conditions. The results of carefully planned experiments on laboratory animals have been brought to bear on clinical experience, so that one is justified in concluding with Park, Guy and Powers[6] of Yale that, in the presence of calcium or phosphorus starvation, cod liver oil enables the animal to get along as if the calcium or phosphorus were supplied in sufficient or almost sufficient quantity in the diet. Obviously, they say, cod liver oil makes the metabolic processes of the body in respect to these two elements vastly more efficient, even though it does not supply them.

The clinician's observation, long unsupported and even disparaged by the worker in the chemical laboratory, has thus, "come into its own."

Mental aloofness and a hypercritical attitude have become obliterated in the common belief in established facts. Let us, however, not on that account overexalt empiric methods or undervalue a rigorously critical attitude. The latter has more than once saved us from quackery and charlatanism, from painful error or dangerous overconfidence. The cults always delight to stress the historic incidents of the failures of the scientist to grasp a truth that was subsequently proclaimed far and wide. But even the rankest empiricist is quick to discover a palpable fraud. Metallic tractors, electric belts and even subtle electronic currents are schemes of deception which do not require scientific training and clinical insight, but merely common honesty for their undoing.—*Jour. A. M. A.*

4. Luckhardt, A. B.: The Progress of Medicine, J. A. M. A. 81:347 (Aug. 4) 1923.

5. Guy, Ruth A.: The History of Cod Liver Oil as a Remedy, Am. J. Dis. Child. 26:112 (Aug.) 1923.

6. Park E. A.; Guy, Ruth A., and Powers, G. F.: A Proof of the Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism, Am. J. Dis. Child. 26: 103 (Aug.) 1923.

NEW AND NONOFFICIAL REMEDIES.

New Tuberculin B. E., Dried.—To obtain this product, tubercle bacilli are dried, ground for several months in a ball mill, the finely disintegrated bacillary bodies are mixed with a suitable base and made into tablets. Each tablet represents a definite amount of New Tuberculin B. E., Dried.

Tablets Tuberculin B. E.-P.D. & Co.—New Tuberculin B. E., Dried, marketed in vials No. 1 of ten tablets, each tablet containing 0.0001 mg.; in vials No. 2 of ten tablets, each tablet containing 0.001 mg.; in vials No. 3 of ten tablets, each tablet containing 0.01 mg.; in vials No. 4 of ten tablets, each tablet containing 0.1 mg.; in vials No. 5 of ten tablets, each tablet containing 1 mg.; also marketed in packages of 5 vials, Nos. 1, 2, 3, 4 and 5, inclusive. Parke, Davis & Co., Detroit.

New Tuberculin T. R., Dried.—The mass culture of tubercle bacteria is washed repeatedly, agitated again in water, washed, ground to complete disintegration, extracted repeatedly with water, and the water insoluble material, instead of being ground to form a suspension in water as in New Tuberculin T. R., Liquid, is dried. The dried material is thoroughly mixed with a suitable diluent. Each tablet represents a definite amount of dried tubercle bacilli.

Tablets Tuberculin T. R.-P. D. & Co.—New Tuberculin T. R., Dried, marketed in vials No. 1 of ten tablets, each tablet containing 0.0001 mg.; in vials No. 2 of ten tablets, each tablet containing 0.001 mg.; in vials No. 3 of ten tablets, each tablet containing 0.01 mg.; in vials No. 4 of ten tablets, each tablet containing 0.1 mg.; in vials No. 5 of ten tablets, each tablet containing 1 mg.; also marketed in packages of five vials Nos. 1, 2, 3, 4 and 5, inclusive. Parke, Davis & Co., Detroit. (Jour. A. M. A., October 6, 1923, p. 1207.)

Sal-Ethyl.—A brand of ethyl salicylate—N. N. R. For a discussion of the actions, uses and dosage of ethyl salicylate, see New and Nonofficial Remedies, 1923, p. 272. Sal-Ethyl is supplied in the form of Sal-Ethyl Capsules, 5 minims. Park, Davis & Co., Detroit. (Jour. A. M. A., October 13, 1923, p. 1285.)

Antidysenteric Serum-P. D. & Co.—An antidysenteric serum (see New and Nonofficial Remedies, 1923, p. 287) obtained from horses immunized against several strains of Shiga and Flexner types of dysentary bacilli. It is marketed in packages of one syringe containing 10 c.c.; in packages of one vial containing 10 c.c.; in packages of one vial containing 20 c.c. Parke, Davis & Co., Detroit. (Jour. A. M. A., October 20, 1923, p. 1363.)

Cheplin's B. Acidophilus Milk.—A milk culture of bacillus acidophilus, containing not less than fifty million of viable B. acidophilus per c.c. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus milk, see Lactic Acid-Producing Organisms and Preparations (Jour. A. M. A., September 8, 1923, p. 831). For adults the dose is from 500 c.c. to 1,000 c.c. Cheplin's B. Acidolphilus Milk is marketed in bottles containing respectively 200 c.c. and 400 c.c. Cheplin Biological Laboratories, Inc., Syracuse, N. Y.

Diphtheria Antitoxin Standard (Purified and Concentrated Globulin).—Formerly marketed as diphtheria antitoxin concentrated (globulin). (See New and Nonofficial Remedies, 1923, p. 283.) This brand of diphtheria antitoxin concentrated is also marketed in packages of one syringe containing 20,000 units. H. K. Mulford Company, Philadelphia.

PROTEIN EXTRACTS DIAGNOSTIC-P. D. & Co.—In addition to the Protein Extracts Diagnostic-P. D. & Co., listed in *The Journal*, September 15, 1923, p. 929, the following have been accepted: Colon Bacillus Protein Extract Diagnostic-P. D. & Co.; Gonococcus Protein Extract Diagnostic-P. D. & Co.; Micrococcus Catarrhalis Protein Extract Diagnostic-P. D. & Co.; Pneumococcus, Type 1, Protein Extract Diagnostic-P. D. & Co.; Pneumococcus, Type 11, Protein Extract Diagnostic-P. D. & Co.; Pneumococcus, Type 111, Protein Extract Diagnostic-P. D. & Co.; Pseudodiphtheria Bacillus Protein Extract Diagnostic-P. D. & Co.; Staphylococcus Albus Protein Extract Diagnostic-P. D. & Co.; Staphylococcus Aureus Protein Extract Diagnostic-P. D. & Co.; Staphylococcus Citreus Protein Extract Diagnostic-P. D. & Co.; Typhoid Bacillus Protein Extract Diagnostic-P. D. & Co. Parke, Davis & Co., Detroit.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (0.1 L+)-Lederle. This product (see New and Nonofficial Remedies, 1923, p. 284) is also marketed in 30 c.c. vials. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., October 27, 1923, p. 1441.)

"From various doctors in counties visited in September the information was volunteered that following the visits of the nurses last fall many prospective mothers went to the physicians for prenatal care and arrangement for care at delivery, who had never employed a physician before. In one case, where an acute kidney complication was found by the nurse, the patient immediately placed herself under a physician's care. We also continue to receive reports from the clinics held during the summer or corrective work that is being done by physicians from the examinations made at that time." (*Excerpt from Departmental Report, Florida State Board of Health.*)

PUBLISHER'S NOTES

THE NEW COMPETITION.

Many progressive manufacturers and merchants say that the cut-price bait is losing its attraction. They are paying less attention to this method of getting more business, and more attention to the idea of quality merchandise service. They believe the results so far achieved justify the statement that their customers will be better served and their own profits enhanced by giving more attention to quality, and less to price.

Real service is what counts. While many people will shop about for prices, the great majority are better satisfied with quality merchandise and good service at a fair price. This makes for confidence—the cornerstone of satisfaction.

Mr. Charles Wesley Dunn, counsel for a number of large manufacturers in this country, has given this problem a great deal of thought. His conclusion is that we are now approaching the time when the real competition will be in merchandise and service rather than in price.

As a nation, we have developed to the highest degree the science of quantity production. Now, with characteristic American progression, it is only natural that we are experiencing a very definite trend toward the development of quality production.

THE RELIABILITY OF ERGOT PREPARATIONS.

A variety of methods for assaying ergot have been employed in the past, some of them chemical, some physiological. The drug contains two or three active therapeutic principles, besides some which were at one time considered important but are now generally discredited. Among the latter the most conspicuous example is ergotinic or sclerotic acid.

Chemical assays of ergot, stoutly defended for a time as being more accurate than physiological methods, have been largely superseded by the latter, for it is now admitted that the darkening effect of a standard specimen upon the comb of the white Leghorn cock is not only a practical gauge of therapeutic value, but as accurate as any chemical test thus far devised. The cock's comb method was applied originally, on a commercial scale, by Parke, Davis & Co., whose advertisement in this issue of THE JOURNAL on the standardization of Ergot is one of a series directing professional attention to the progress of the standardization principle along physiologic lines.